

13

Raw Sequence Listing Error Summary

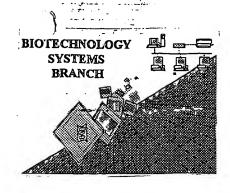
SERIAL NUMBER:

ERROR DETECTED SUGGESTED CORRECTION

	N. NEW 514 51	
ALL		: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE
1	_ Wrapped Nucleics	The number/text at the end of each line "wrapped" down to the next line.
		This may occur if your file was retrieved in a word processor after creating it.
		Please adjust your right margin to .3, as this will prevent "wrapping".
2	_ Wrapped Aminos	The amino acid number/text at the end of each line "wrapped " down to the next line.
		This may occur if your file was retrieved in a word processor after creating it.
		Please adjust your right margin to .3, as this will prevent "wrapping".
3	_ Incorrect Line Length	The rules require that a line not exceed 72 characters in length. This includes spaces.
· —	_ mooy ook cano congar	The fales require that a line not exceed 72 characters in rength. This includes spaces.
4	_ Misaligned Amino Acid	The numbering under each 5th amino acid is misaligned. This may be caused by the use of tabs
	Numbering	between the numbering. It is recommended to delete any tabs and use spacing between the numbers.
5	_ Non-ASCII	This file was not saved in ASCII (DOS) text, as required by the Sequence Rules.
	•	Please ensure your subsequent submission is saved in ASCII text so that it can be processed.
6	Variable Length	Sequence(s) contain n's or Xaa's which represented more than one residue.
	- -	As per the rules, each n or Xaa can only represent a single residue.
•		Please present the maximum number of each residue having variable length and
1		indicate in the (ix) feature section that some may be missing.
7 V	Patentin ver. 2.0 "bug"	A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid
		sequence(s) Normally, Patentln would automatically generate this section from the
	•	previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section
		to the subsequent amino acid sequence. This applies primarily to the mandatory <220>-<223>
		sections for Artificial or Unknown sequences.
8	Skipped Sequences	Sequence(s) missing. If intentional, please use the following format for each skipped sequence:
	(OLD RULES)	(2) INFORMATION FOR SEQ ID NO:X:
		(i) SEQUENCE CHARACTERISTICS:(Do not insert any headings under "SEQUENCE CHARACTERISTICS")
		(xi) SEQUENCE DESCRIPTION:SEQ ID NO:X:
		This sequence is intentionally skipped
		Please also adjust the "(iii) NUMBER OF SEQUENCES:" response to include the skipped sequence(s).
9	Skipped Sequences	Sequence(s) missing. If intentional, please use the following format for each skipped sequence.
	(NEW RULES)	<210> sequence id number
		¢400> sequence id number
- 1		000
I		•
10 🚺	Use of n's or Xaa's	Use of n's and/or Xaa's have been detected in the Sequence Listing.
	(NEW KULES).	Use of <220> to <223> is MANDATORY if n's or Xaa's are present.
		In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.
11	Use of <213>Organism	Sequence(s) are missing this mandatory field or its response.
	(NEW RULES)	Sequence(s) are missing this manuatory field or its response.
	()	
12	Use of <220>Feature	Sequence(s) are missing the <220>Feature and associated headings.
	(NEW RULES)	Use of <220> to <223> is MANDATORY if <213>ORGANISM is "Artificial" or "Unknown"
	,	Please explain source of genetic material in <220> to <223> section.
	,	(See "Federal Register," 6/01/98, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of new Rules)
		, , , , , , , , , , , , , , , , , , , ,
13	Patentin ver. 2.0 "bug"	Please do not use "Copy to Disk" function of Patentin version 2.0. This causes a corrupted
	James J.	Title, Testitling in missing mandatory numeric identifiers and responses (as indicated on raw sequence tisting).

Instead, please use "File Manager" or any other means to copy file to floppy disk.

File Copy RAW SEQUENCE LISTING ERROR REPORT



The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/689,343

Source: 01PE

Date Processed by STIC: $\frac{10/27/2000}{2000}$

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.
PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,

2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216. PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax) PATENTIN 3.0 e-mail help: patin30help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE <u>CHECKER</u> <u>VERSION 3.0 PROGRAM</u>, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:

Checker Version 3.0

The Checker Version 3.0 application is a state-of the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 – 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.

Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

Checker Version 3.0 can be down loaded from the USPTO website at the following address: http://www.uspto.gov/web/offices/pac/checker

OIPE

RAW SEQUENCE LISTING DATE: 10/27/2000 PATENT APPLICATION: US/09/689,343 TIME: 08:36:04

Input Set : A:\Neb-181.app

Output Set: N:\CRF3\10272000\1689343.raw

Does Not Gemply
Corrected Diskette Needed

pp45

3 <110> APPLICANT: VAISVILA, ROMUALDAS MORGAN, RICHARD D. KUCERA, REBECCA B. CLAUS, TOBY E. RALEIGH, ELISABETH A. 9 <120> TITLE OF INVENTION: METHOD FOR CLONING AND PRODUCING THE MSeI RESTRICTION ENDONUCLEASE 12 <130> FILE REFERENCE: NEB-181 14 <140> CURRENT APPLICATION NUMBER: US/09/689,343 15 <141> CURRENT FILING DATE: 2000-10-12 17 <160> NUMBER OF SEQ ID NOS: 9 19 <170> SOFTWARE: PatentIn Ver. 2.0 21 <210> SEQ ID NO: 1 22 <211> LENGTH: 903 23 <212> TYPE: DNA 24 <213> ORGANISM: Micrococcus sp. 26 <220> FEATURE: 27 <221> NAME/KEY: CDS 28 <222> LOCATION: (1)..(900) 30 <400> SEQUENCE: 1 31 atg cct atc tcg acc gtc tgg acg ccg gac gga gac gac ctc atc gtg 32 Met Pro Ile Ser Thr Val Trp Thr Pro Asp Gly Asp Asp Leu Ile Val 5 10 35 gag gcg gac aac etc gat ttc att caa acg etc eec gac gcg age ttc 96 36 Glu Ala Asp Asn Leu Asp Phe Ile Gln Thr Leu Pro Asp Ala Ser Phe 37 20 25 30 39 cga atg atc tac atc gat ccg ccg ttc aac aca ggg cga acg cag cgg 40 Arg Met Ile Tyr Ile Asp Pro Pro Phe Asn Thr Gly Arg Thr Gln Arg 41 35 40 4.5 43 ctt cag tog otc aag acg acc ogc tog gtc aca ggg tog oga gtc ggc 192 44 Leu Gln Ser Leu Lys Thr Thr Arg Ser Val Thr Gly Ser Arg Val Gly 50 55 60 47 ttc aaa ggc cag acg tac gac acg gtc aag agc act ctg cac tcg tat 240 48 Phe Lys Gly Gln Thr Tyr Asp Thr Val Lys Ser Thr Leu His Ser Tyr 49 65 70 75 51 gac gac gct ttc acc gac tat tgg tcg ttc ctc gaa ccg cgt ctc ctg 288 52 Asp Asp Ala Phe Thr Asp Tyr Trp Ser Phe Leu Glu Pro Arg Leu Leu 8.5 90 55 gag get tgg egg ttg etc acc eet gae gge geg etc tat ett eat etg 336 56 Glu Ala Trp Arg Leu Leu Thr Pro Asp Gly Ala Leu Tyr Leu His Leu 1.05 59 gat tac ege gag gtt cac tae gee aag gte gte ete gae geg atg tte 384 60 Asp Tyr Arg Glu Val His Tyr Ala Lys Val Val Leu Asp Ala Met Phe 115 120 125 63 gga cgc gaa agc ttc ctg aac gag ctg atc tgg gcg tac gac tac ggc 432 64 Gly Arg Glu Ser Phe Leu Asn Glu Leu Ile Trp Ala Tyr Asp Tyr Gly 130 135 140

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Input Set : A:\Neb-181.app
Output Set: N:\CRF3\10272000\1689343.raw

67 gcg cgc tog aag agc aag tgg ccc acc aag cac gac aac atc ctc gtg 68 Ala Arg Ser Lys Ser Lys Trp Pro Thr Lys His Asp Asn Ile Leu Val 69 145 150 155 160 71 tat gtg aag gac ccg aac aac tac gtc tgg aac ggt cag gat gta gat 528 72 Tyr Val Lys Asp Pro Asn Asn Tyr Val Trp Asn Gly Gln Asp Val Asp 73 165 170 175 75 ege gag ece tae atg geg ece ggg ete gtt aca ece gag aag gta geg 76 Arg Glu Pro Tyr Met Ala Pro Gly Leu Val Thr Pro Glu Lys Val Ala 180 1.85 190 79 ett gge aag etg eec ace gae gte tgg tgg eac aca ate gtt eeg eet 80 Leu Gly Lys Leu Pro Thr Asp Val Trp Trp His Thr Ile Val Pro Pro 81 200 205 83 gcg agc aaa gag cgc acc ggg tac gcg aca cag aag ccg gtc ggc atc 84 Ala Ser Lys Glu Arg Thr Gly Tyr Ala Thr Gln Lys Pro Val Gly Ile 672 85 210 215 220 87 atc cgt cgc atg att cag gcg agc agc aat gaa ggc gac tgg gtt ctg 720 88 Ile Arg Arg Met Ile Gln Ala Ser Ser Asn Glu Gly Asp Trp Val Leu 230 235 91 gat the the get ggt agt ggg acg acc gge gee gge ege cag che 768 92 Asp Phe Phe Ala Gly Ser Gly Thr Thr Gly Ala Ala Ala Arg Gln Leu 93 245 250 255 95 gga ege egt tit gig ete gia gae gie aac eea gaa gea ate geg gia 96 Gly Arg Arg Phe Val Leu Val Asp Val Asn Pro Glu Ala Ile Ala Val 97 260 265 270 270 99 atg gca aaa cgg ttg gat gac ggg gca ttg gac acc agc gtg acg atc 100 Met Ala Lys Arg Leu Asp Asp Gly Ala Leu Asp Thr Ser Val Thr Ile 101 275 280 285 103 gtg cag act ccc cag agt gac cca cga acc gac gga tga 104 Val Gln Thr Pro Gln Ser Asp Pro Arg Thr Asp Gly 105 290 295 108 <210> SEQ ID NO: 2 109 <211> LENGTH: 300 110 <212> TYPE: PRT 111 <213> ORGANISM: Micrococcus sp. 113 <400> SEQUENCE: 2 114 Met Pro Ile Ser Thr Val Trp Thr Pro Asp Gly Asp Asp Leu Ile Val 117 Glu Ala Asp Asn Leu Asp Phe Ile Gln Thr Leu Pro Asp Ala Ser Phe
118 20 25 30 120 Arg Met Ile Tyr Ile Asp Pro Pro Phe Asn Thr Gly Arg Thr Gln Arg 121 35 40 45123 Leu Gln Ser Leu Lys Thr Thr Arg Ser Val Thr Gly Ser Arg Val Gly 124 50 126 Phe Lys Gly Gln Thr Tyr Asp Thr Val Lys Ser Thr Leu His Ser Tyr 127 65 70 75 80 129 Asp Asp Ala Phe Thr Asp Tyr Trp Ser Phe Leu Glu Pro Arg Leu Leu 130 85 90 95 132 Glu Ala Trp Arg Leu Leu Thr Pro Asp Gly Ala Leu Tyr Leu His Leu 1.00

RAW SEQUENCE LISTING DATE: 10/27/2000 PATENT APPLICATION: US/09/689,343 TIME: 08:36:04

Input Set : A:\Neb-181.app

Output Set: N:\CRF3\10272000\1689343.raw

135 Asp Tyr Arg Glu Val His Tyr Ala Lys Val Val Leu Asp Ala Met Phe 115 120 138 Gly Arg Glu Ser Phe Leu Asn Glu Leu Ile Trp Ala Tyr Asp Tyr Gly 139 130 135 140 141 Ala Arg Ser Lys Ser Lys Trp Pro Thr Lys His Asp Asn Ile Leu Val 142 145 150 155 160 144 Tyr Val Lys Asp Pro Asn Asn Tyr Val Trp Asn Gly Gln Asp Val Asp 145 165 170 175 147 Arg Glu Pro Tyr Met Ala Pro Gly Leu Val Thr Pro Glu Lys Val Ala 148 $$ 180 $$ 185 $$ 190 $$ 150 Leu Gly Lys Leu Pro Thr Asp Val Trp Trp His Thr Ile Val Pro Pro 151 205 153 Ala Ser Lys Glu Arg Thr Gly Tyr Ala Thr Gln Lys Pro Val Gly Ile 154 210 215 220 156 Ile Arg Arg Met Ile Gln Ala Ser Ser Asn Glu Gly Asp Trp Val Leu 157 225 230 230 235 235 159 Asp Phe Phe Ala Gly Ser Gly Thr Thr Gly Ala Ala Ala Arg Gln Leu 160 245 250 255 162 Gly Arg Arg Phe Val Leu Val Asp Val Asn Pro Glu Ala Ile Ala Val 163 260265270 165 Met Ala Lys Arg Leu Asp Asp Gly Ala Leu Asp Thr Ser Val Thr Ile 166 275 280 285 168 Val Gln Thr Pro Gln Ser Asp Pro Arg Thr Asp Gly 169 290 295 172 <210> SEQ ID NO: 3 173 <211> LENGTH: 1236 174 <212> TYPE: DNA 175 <213> ORGANISM: Unknown 177 <220> FEATURE: 178 <223> OTHER INFORMATION: Description of Unknown Organism: ENVIRONMENTAL DNA 180 <220> FEATURE: 181 <221> NAME/KEY: CDS 182 <222> LOCATION: (1)..(1233) 184 <400> SEQUENCE: 3 185 atg cct aca ctg gat tgg ccc ggt aaa cag tta agc ttc cca cca gct 186 Met Pro Thr Leu Asp Trp Pro Gly Lys Gln Leu Ser Phe Pro Pro Ala 187 1 5 10 15 189 acc tcc ttg cat ctg gag agt gtg gtc act gag gga gcg gag tca ccg 190 Thr Ser Leu His Leu Glu Ser Val Val Thr Glu Gly Ala Glu Ser Pro
191 20 25 30 193 cct aat cgt ctg att tgg gcg gac aac ctg ccg cta atg gta gat ttg 194 Pro Asn Arg Leu Ile Trp Ala Asp Asn Leu Pro Leu Met Val Asp Leu 195 35 40 45 197 ttg gcc gaa tat gaa ggg aaa atc gat ctg atc tac gcc gat ccc cct 198 Leu Ala Glu Tyr Glu Gly Lys Ile Asp Leu Ile Tyr Ala Asp Pro Pro 199 50 55 201 ttt ttt acg gat cgt act tat gcg gcg cga att ggt cat ggg gag gat 202 Phe Phe Thr Asp Arg Thr Tyr Ala Ala Arg Ile Gly His Gly Glu Asp

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203 65

DATE: 10/27/2000 TIME: 08:36:04 RAW SEQUENCE LISTING PATENT APPLICATION: US/09/689,343

Input Set : A:\Neb-181.app
Output Set: N:\CRF3\10272000\1689343.raw

	205	tcg	cgt	cgt	cca	caa	acc	tgg	cag	ctt	gca	gaa	gga	tat	acg	gac	gag	288	
	206	Ser	Arg	Arg	Pro	Gln	Thr	Trp	Gln	Leu	Ala	Glu	Gly	Tyr	Thr	Asp	Glu		
	207					85					90					95			
			_	_		•	-		ctg						•		_	336	
		Trp	Lys	Asp		Asp	Glu	Tyr	Leu	_	Phe	Leu	Tyr	Pro	-	Leu	Val		
	211				100					105					110				
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		Leu	Met		Arg	Leu	Leu	Ala	Pro	His	Gly	Thr	Leu	-	Leu	His	Leu		
	215			115					120					125					
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	235			195					200					205					ma Summary
	237	ggc	ttt	ggt	aag	qtq	CCG	gat	ctg	caq	cgc	ggc	aaa	gtg	CCC	gaa	gac	672	0,4(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
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		Gly	Phe	Gly	Lys			-	Leu		-			Val	$_{\mathrm{Pro}}$	Glu	Asp		
	239	-	210	_	-	Val	Pro	Asp 215	Leu	Gln	Arg	Gly	Lys 220				•		llat '
	239 241	tgg	210 tgg	tat	ttt	val	Pro gtc	Asp 215 gtg	Leu	Gln cgt	Arg cta	Gly cac	Lys 220 cga	gaa	cgg	agc	ggc	720	Sheet
	239 241 242	tgg Trp	210 tgg	tat	ttt	val	Pro gtc Val	Asp 215 gtg	Leu	Gln cgt	Arg cta	Gly cac His	Lys 220 cga	gaa	cgg	agc	ggc Gly	720	7 sle item 10 on Eng Summary Sheet
	239 241 242 243	tgg Trp 225	210 tgg Trp	tat Tyr	ttt Phe	Val ccg Pro	Pro gtc Val 230	Asp 215 gtg Val	Leu gcc Ala	Gln cgt Arg	Arg cta Leu	Gly cac His 235	Lys 220 cga Arg	gaa Glu	cgg Arg	agc Ser	ggc Gly 240		Sheet
	239 241 242 243 245	tgg Trp 225 tat	210 tgg Trp	tat Tyr act	ttt Phe	Val ccg Pro	Pro gtc Val 230 cct	Asp 215 gtg Val caa	Leu gcc Ala gcc	Gln cgt Arg ttg	Arg cta Leu ctg	Gly cac His 235 gag	Lys 220 cga Arg	gaa Glu atc	cgg Arg ctg	agc Ser ctg	ggc Gly 240 gcc	720 768	Sheet
	239 241 242 243 245 246	tgg Trp 225 tat	210 tgg Trp	tat Tyr act	ttt Phe	Val ccg Pro aag Lys	Pro gtc Val 230 cct	Asp 215 gtg Val caa	Leu gcc Ala	Gln cgt Arg ttg	Arg cta Leu ctg Leu	Gly cac His 235 gag	Lys 220 cga Arg	gaa Glu atc	cgg Arg ctg	agc Ser ctg Leu	ggc Gly 240 gcc		Sheet
	239 241 242 243 245 246 247	tgg Trp 225 tat Tyr	210 tgg Trp ccg Pro	tat Tyr act Thr	ttt Phe caa Gl.n	Val ccg Pro aag Lys 245	Pro gtc Val 230 cct Pro	Asp 215 gtg Val caa Gln	gcc Ala gcc Ala	Gln cgt Arg ttg Leu	Arg cta Leu ctg Leu 250	Gly cac His 235 gag Glu	Lys 220 cga Arg cgg Arg	gaa Glu atc Ile	cgg Arg ctg Leu	agc Ser ctg Leu 255	ggc Gly 240 gcc Ala	768	Sheet
	239 241 242 243 245 246 247 249	tgg Trp 225 tat Tyr	210 tgg Trp ccg Pro	tat Tyr act Thr	ttt Phe caa Gln gca	val ccg Pro aag Lys 245 ggc	gtc Val 230 cct Pro	Asp 215 gtg Val caa Gln	gcc Ala gcc Ala	Gln cgt Arg ttg Leu gca	Arg cta Leu ctg Leu 250 gac	Gly cac His 235 gag Glu ttc	Lys 220 cga Arg cgg Arg	gaa Glu atc Ile tgc	cgg Arg ctg Leu ggc	agc Ser ctg Leu 255 tca	ggc Gly 240 gcc Ala		Sheet
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	239 241 242 243 245 246 247 249 250 251	tgg Trp 225 tat Tyr tcc Ser	210 tgg Trp ccg Pro tcg ser	tat Tyr act Thr aac	ttt Phe caa Gln gca Ala 260	val ccg Pro aag Lys 245 ggc Gly	Pro gtc Val 230 cct Pro gat Asp	Asp 215 gtg Val caa Gln ctg Leu	gcc Ala gcc Ala gtg Val	cgt Arg ttg Leu gca Ala 265	cta Leu ctg Leu 250 gac Asp	Gly cac His 235 gag Glu ttc Phe	Lys 220 cga Arg cgg Arg ttc Phe	gaa Glu atc Ile tgc Cys	cgg Arg ctg Leu ggc Gly 270	agc Ser ctg Leu 255 tca Ser	ggc Gly 240 gcc Ala ggg Gly	768 816	Sheet
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	239 241 242 243 245 246 247 249 250 251 253 254 255	tgg Trp 225 tat Tyr tcc Ser aca Thr	210 tgg Trp ccg Pro tcg Ser acc Thr	tat Tyr act Thr aac Asn gct Ala 275	ttt Phe caa Gln gca Ala 260 gtg Val	val ccg Pro aag Lys 245 ggc Gly gtg val	gtc Val 230 cct Pro gat Asp gca Ala	Asp 215 gtg Val caa Gln ctg Leu gcc Ala	gcc Ala gcc Ala gtg Val cgt Arg	cgt Arg ttg Leu gca Ala 265 ctg Leu	Arg cta Leu ctg Leu 250 gac Asp gga Gly	Cac His 235 gag Glu ttc Phe cgg Arg	Lys 220 cga Arg cgg Arg ttc Phe cgc Arg	gaa Glu atc Ile tgc Cys ttc Phe 285	cgg Arg ctg Leu ggc Gly 270 ctg Leu	agc Ser ctg Leu 255 tca Ser gtc Val	ggc Gly 240 gcc Ala ggg Gly aac Asn	768 816	Sheet
	239 241 242 243 245 246 247 249 250 251 253 254 255 257	tgg Trp 225 tat Tyr tcc ser aca Thr	210 tgg Trp ccg Pro tcg ser acc Thr	tat Tyr act Thr aac Asn gct Ala 275 agc	ttt Phe caa Gln gca Ala 260 gtg Val	val ccg Pro aag Lys 245 ggc Gly gtg val	gtc Val 230 cct Pro gat Asp gca Ala	Asp 215 gtg Val caa Gln ctg Leu gcc Ala	gcc Ala gcc Ala gtg Val cgt Arg 280	cgt Arg ttg Leu gca Ala 265 ctg Leu	Arg cta Leu ctg Leu 250 gac Asp gga Gly aca	Gly cac His 235 gag Glu ttc Phe cgg Arg	Lys 220 cga Arg cgg Arg ttc Phe cgc Arg	gaa Glu atc Ile tgc Cys ttc Phe 285 cgc	cgg Arg ctg Leu ggc Gly 270 ctg Leu	agc Ser ctg Leu 255 tca Ser gtc Val	ggc Gly 240 gcc Ala ggg Gly aac Asn	768 816 864	Sheet
	239 241 242 243 245 246 247 249 250 251 253 254 255 257	tgg Trp 225 tat Tyr tcc ser aca Thr	210 tgg Trp ccg Pro tcg ser acc Thr	tat Tyr act Thr aac Asn gct Ala 275 agc	ttt Phe caa Gln gca Ala 260 gtg Val	val ccg Pro aag Lys 245 ggc Gly gtg val	gtc Val 230 cct Pro gat Asp gca Ala	Asp 215 gtg Val caa Gln ctg Leu gcc Ala	gcc Ala gcc Ala gtg Val cgt Arg 280 cat	cgt Arg ttg Leu gca Ala 265 ctg Leu	Arg cta Leu ctg Leu 250 gac Asp gga Gly aca	Gly cac His 235 gag Glu ttc Phe cgg Arg	Lys 220 cga Arg cgg Arg ttc Phe cgc Arg	gaa Glu atc Ile tgc Cys ttc Phe 285 cgc	cgg Arg ctg Leu ggc Gly 270 ctg Leu	agc Ser ctg Leu 255 tca Ser gtc Val	ggc Gly 240 gcc Ala ggg Gly aac Asn	768 816 864	Sheet
	239 241 242 243 245 246 247 250 251 253 254 255 257 258 259	tgg Trp 225 tat Tyr tcc Ser aca Thr gat Asp	210 tgg Trp ccg Pro tcg Ser acc Thr	tat Tyr act Thr aac Asn gct Ala 275 agc ser	ttt Phe caa Gln gca Ala 260 gtg Val tgg	val ccg Pro aag Lys 245 ggc Gly gtg val cgc Arg	Pro gtc Val 230 cct Pro gat Asp gca Ala gcc Ala	Asp 215 gtg Val caa Gln ctg Leu gcc Ala gtt Val 295	gcc Ala gcc Ala gtg Val cgt Arg 280 cat	cgt Arg ttg Leu gca Ala 265 ctg Leu gtg Val	Arg cta Leu ctg Leu 250 gac Asp gga Gly aca Thr	Gly cac His 235 gag Glu ttc Phe cgg Arg cgc Arg	Lys 220 cga Arg cgg Arg ttc Phe cgc Arg aca Thr 300	gaa Glu atc Ile tgc Cys ttc Phe 285 cgc Arg	cgg Arg ctg Leu ggc Gly 270 ctg Leu ttg	agc Ser ctg Leu 255 tca Ser gtc Val cta Leu	ggc Gly 240 gcc Ala ggg Gly aac Asn	768 816 864	Sheet
	239 241 242 243 245 246 247 249 250 251 253 254 255 257 258 259 261	tgg Trp 225 tat Tyr tcc Ser aca Thr gat Asp	210 tgg Trp ccg Pro tcg Ser acc Thr gca Ala 290 gga	tat Tyr act Thr aac Asn gct Ala 275 agc ser	ttt Phe caa Gln gca Ala 260 gtg Val tgg Trp	val ccg Pro aag Lys 245 ggc Gly gtg val cgc Arg	gtc Val 230 cct Pro gat Asp gca Ala gcc	Asp 215 gtg Val caa Gln ctg Leu gcc Ala gtt Val 295 ttt	Leu gcc Ala gcc Ala gtg Val cgt Arg 280 cat His	cgt Arg ttg Leu gca Ala 265 ctg Leu gtg Val	Arg cta Leu ctg Leu 250 gac Asp gga Gly aca Thr	Gly cac His 235 gag Glu ttc Phe cgg Arg cgc Arg	Lys 220 cga Arg cgg Arg ttc Phe cgc Arg aca Thr 300 act	gaa Glu atc Ile tgc Cys ttc Phe 285 cgc Arg	cgg Arg ctg Leu ggc Gly 270 ctg Leu ttg Leu	agc Ser ctg Leu 255 tca Ser gtc Val cta Leu	ggc Gly 240 gcc Ala ggg Gly aac Asn cgc Arg	768 816 864 912	Sheet
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	239 241 242 243 245 246 247 250 251 253 255 257 258 259 261 262 263 265	tgg Trp 225 tat Tyr tcc Ser aca Thr gat Asp gag Glu 305 atc	210 tgg Trp ccg Pro tcg Ser acc Thr gca Ala 290 gga Gly	tat Tyr act Thr aac Asn gct Ala A275 agc Ser gta Val	ttt Phe caa Gln gca Ala 260 gtg Val tgg Trp agt Ser ctt	val ceg Pro aag Lys 245 ggc Gly gtg val cgc Arg ttc Phe	Pro gtc Val 230 cct Pro gat Asp gca Ala act Thr 310 cca	Asp 215 gtg Val caa Gln ctg Leu gcc Ala gtt Val 295 ttt Phe	Leu gcc Ala gcc Ala gtg Val cgt Arg 280 cat His gaa Glu tgg	Gln cgt Arg ttg Leu gca Ala 265 ctg Leu gtg Val cgc Arg	Arg cta Leu ctg Leu 250 gac Asp gga Gly aca Thr cag Gln atc	cac His 235 gag Glu ttc Phe cgg Arg cgc Arg daa Glu 315 atc	Lys 220 cga Arg cgg Arg ttc Phe cgc Arg aca Thr 300 act Thr	gaa Glu atc Ile tgc Cys ttc Phe 285 cgc Arg ttt Phe	cgg Arg ctg Leu ggc Gly 270 ctg Leu ttg Leu	agc Ser ctg Leu 255 tca Ser gtc Val cta Leu cta	ggc Gly 240 gcc Ala ggg Gly aac Asn cgc Arg	768 816 864 912	Sheet
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PATENT APPLICATION: US/09/689,343 TIME: 08:36:04 Input Set : A:\Neb-181.app Output Set: N:\CRF3\10272000\1689343.raw 270 Arg Leu Gln Ala Pro Phe Leu Val Asp Phe Trp Glu Val Asp Asp Gln 271 340 345 350 273 tgg gat ggc aaa atc ttc cgc agc cgt cat caa ggc tta cgc tcc cgc 1104 274 Trp Asp Gly Lys Ile Phe Arg Ser Arg His Gln Gly Leu Arg Ser Arg 355 360 365 277 ctt cag gag cag gcg ccg ctc tct cta cca ttg acc ggg aat gga ctg 1152 278 Leu Gln Glu Gln Ala Pro Leu Ser Leu Pro Leu Thr Gly Asn Gly Leu 375 380 281 ttg tgt gta cgg gta gtg agc cgt gaa ggg gaa tac tat gag ttc aca 1200 282 Leu Cys Val Arg Val Val Ser Arg Glu Gly Glu Tyr Tyr Glu Phe Thr 283 385 390 395 285 ggt cga gcc gat agc cct cac ccc gta tcg ttt tga 286 Gly Arg Ala Asp Ser Pro His Pro Val Ser Phe 405 290 <210> SEQ ID NO: 4 291 <211> LENGTH: 411 I see item 7 on Eva Sunnay Sheet 292 <212> TYPE: PRT 293 <213> ORGANISM: Unknown -> 295 <220> FEATURE: -> 295 (223) OTHER INFORMATION: 295 <400> SEQUENCE: 4 296 Met Pro Thr Leu Asp Trp Pro Gly Lys Gln Leu Ser Phe Pro Pro Ala 297 1 5 10 15 299 Thr Ser Leu His Leu Glu Ser Val Val Thr Glu Gly Ala Glu Ser Pro 302 Pro Asn Arg Leu Ile Trp Ala Asp Asn Leu Pro Leu Met Val Asp Leu 303 354045 305 Leu Ala Glu Tyr Glu Gly Lys Ile Asp Leu Ile Tyr Ala Asp Pro Pro 55 308 Phe Phe Thr Asp Arg Thr Tyr Ala Ala Arg Ile Gly His Gly Glu Asp 309 $\,$ 65 $\,$ 70 $\,$ 75 $\,$ 80 311 Ser Arg Arg Pro Gln Thr Trp Gln Leu Ala Glu Gly Tyr Thr Asp Glu 312 85 90 95 8.5 314 Trp Lys Asp Leu Asp Glu Tyr Leu Asp Phe Leu Tyr Pro Arg Leu Val 315 100 105 110100 105 317 Leu Met Tyr Arg Leu Leu Ala Pro His Gly Thr Leu Tyr Leu His Leu 318 115 120 125 320 Asp Trp His Ala Asn Ala Tyr Val Arg Val Leu Leu Asp Glu Ile Phe 321 130 135 140323 Gly Arg Gln Arg Phe Leu Asn Glu Ile Val Trp Ile Tyr His Gly Pro 324 145 150 155 326 Ser Ala Ile Arg Arg Ala Phe Lys Arg Lys His Asp Thr Ile Leu Val 327 165170170175 329 Tyr Val Lys Gly Glu Asn Tyr Thr Phe Asn Ala Asp Ala Val Arg Gln
330 180 185 190 -> see ten 10 on Ever Sunnay Sheet W--> 332 Pro Tyr His Pro Ser/Xaa His Lys Thr Phe Ala Ser Ser Pro Lys Ala 333 195 200 335 Gly Phe Gly Lys Val. Pro Asp Leu Gln Arg Gly Lys Val Pro Glu Asp 215

DATE: 10/27/2000

RAW SEQUENCE LISTING

VERIFICATION SUMMARY

DATE: 10/27/2000

PATENT APPLICATION: US/09/689,343

TIME: 08:36:05

Input Set : A:\Neb-181.app

Output Set: N:\CRF3\10272000\1689343.raw

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